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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

DURAFLAME, INC., a California
corporation,

Plaintiff,

v.

HEARTHMARK, LLC, dba JARDEN HOME
BRANDS, a Delaware corporation,

Defendant.

HEARTHMARK, LLC, dba JARDEN HOME
BRANDS, a Delaware corporation,

Cross-Complainant,

v.

DURAFLAME, INC., a California
corporation,

Cross-Defendant.

Case No. CV12-01205 RS

The Honorable Richard Seeborg, Presiding

**DURAFLAME'S OPENING CLAIM
CONSTRUCTION BRIEF**

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Pursuant to Patent Local Rule 4.5, Plaintiff-Cross Defendant Duraflame, Inc. (“Duraflame”) respectfully submits its opening brief on claim construction.

Two patents are asserted by Duraflame. While both patents are directed to artificial firelogs, each covers a different invention.

The first patent, U.S. Patent 8,007,550, is entitled “Artificial Firelog Using Non-Petroleum Waxes.” Known as the “ ‘550 patent”, it is directed to an artificial firelog that uses blends of certain chemical materials found in renewable non-petroleum components to achieve a number of important benefits. These benefits include lower cost, better lighting and flaming performance, and a log which is more environmentally sustainable in comparison to firelogs made using non-renewable fossil-fuel based waxes. ‘550 patent, 2:19-44; 8:65-9:9.¹

The second patent, U.S. Patent 8,123,824, is entitled “Artificial Firelog Using Oil and/or Fat-Retaining Materials.” In the ‘824 patent, the claimed firelog includes a certain minimum amount of non-absorbent, oil and/or fat-retaining material (such as agricultural by-products, distiller’s grain, and filter cake material) that substitutes for the woody cellulosic material usually used in artificial firelogs (such as sawdust). By using the non-absorbent, oil-retaining material, the firelog requires less wax (a more costly component), while still maintaining the same performance as a conventional artificial firelog. ‘824 patent, 2:61-3:22.²

For the convenience of the Court, Duraflame marshals the evidence supporting its proposed claim constructions below in connection with each disputed term. The patents are not procedurally related and were separately drafted and filed, and so Duraflame discusses each patent separately. For many disputed terms, Defendant-Cross Complainant Hearthmark, LLC (“Hearthmark”) does not propose its own construction. Instead, in the Patent Local Rule 4.3 Joint

¹ The ‘550 patent is Exhibit A to the Declaration of John M. Griem, Jr. (the “Griem Decl”). Patent citations herein are generally to column and line numbers, using this format: [column number]:[starting line – ending line] or [column number]:[line number] – [column number]:[line number]. The certified file history of the ‘550 patent is Exhibit B to the Griem Declaration.

² The ‘824 patent is Exhibit C to the Griem Declaration, and the ‘824 patent’s certified file history is Exhibit D.

1 Claim Construction and Prehearing Statement [Docket No. 64] Hearthmark proposes that many
 2 terms should be given their “plain and ordinary meaning,” without explaining what that meaning
 3 is or why Duraflame’s proposed constructions are not correct.

4 Duraflame’s independent technical expert, James Houck, will be available at the hearing if
 5 necessary to provide testimony supporting his opinions, which are summarized in the Patent Local
 6 Rule 4.3 Statement. Hearthmark took Mr. Houck’s deposition on December 13, 2012, and so
 7 relevant portions of his testimony is cited below in support of Duraflame’s proposed
 8 constructions. Hearthmark did not identify any expert in support of its claim constructions.

9 **I. LEGAL BACKGROUND**

10 The *Markman* process allows the parties to assist the Court in complying with what the
 11 Federal Circuit describes as the Court’s “power and obligation” to construe, as a matter of law, the
 12 asserted claims of the patent-in-suit. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979
 13 (Fed. Cir. 1995) (*en banc*), *aff’d* 517 U.S. 370 (1996). The *Markman* decision and its progeny
 14 provide the rules by which the asserted claims of the patent-in-suit must be construed. Among
 15 those is the primacy of the intrinsic evidence of record, which consists of the patent’s specification
 16 (*i.e.*, the drawings, written description, and claims of the patent-in-suit) and the patent’s
 17 prosecution history (*i.e.*, the written record of the proceedings in the Patent and Trademark Office
 18 (the “PTO”) that led to the issuance of the patent-in-suit). This intrinsic evidence “constitutes a
 19 public record of the patentee’s representations concerning the scope and the meaning of the
 20 claims.” *Springs Window Fashions LP v. Novo Indus., L.P.*, 323 F.3d 989, 995 (Fed. Cir. 2003).
 21 Extrinsic evidence – including expert and inventor testimony, dictionaries, and learned treatises –
 22 may also be utilized, but it is “less significant than the intrinsic record.” *Phillips v. AWH Corp.*,
 23 415 F.3d 1303, 1317-18 (Fed. Cir. 2005).

24 **A. Claim Terms Are Generally Given Their Ordinary and Customary Meaning** 25 **In Light Of The Specification And Prosecution History.**

26 Claim construction is a question of law exclusively for the court. *See Markman*, 517 U.S.
 27 at 384. The court’s task is to determine the meaning of the claims at the time of the invention.

1 *See id.* The legal principles governing claim construction were summarized and clarified by the
 2 Federal Circuit sitting *en banc* in *Phillips*. The Court explained that claim terms “are generally
 3 given their ordinary and customary meaning,” which is “the meaning that the terms would have to
 4 a person of ordinary skill in the art in question at the time of the invention.” *Phillips*, 415 F.3d at
 5 1312-13. To determine this meaning, “the court starts the decision making process by reviewing
 6 the same resources as would that person, *viz.*, the patent specification and the prosecution history.”
 7 *Id.* at 1313. The ordinary meaning of a term cannot be viewed in a vacuum; it must be viewed in
 8 light of the written description and prosecution history. *Id.* at 1313.

9 **B. The Specification Is The Single Best Guide To The Meaning Of A Disputed**
 10 **Term**

11 The Federal Circuit emphasized in *Phillips* that the claims “must be read in view of the
 12 specification, of which they are part.” *Id.* at 1315 (quoting *Markman*, 52 F.3d at 979). The
 13 specification is “always highly relevant to the claim construction analysis” and “[u]sually it is
 14 dispositive; it is the single best guide to the meaning of a disputed term.” *Id.* (emphasis added)
 15 (internal citations and quotations omitted) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d
 16 1576, 1582 (Fed. Cir. 1996)). “Ultimately, the interpretation to be given a term can only be
 17 determined and confirmed with a full understanding of what the inventors actually invented and
 18 intended to envelop with the claim.” *Phillips*, 415 F.3d at 1316.

19 Claim terms should not be broadly construed to encompass subject matter that, although
 20 covered by a literal reading of the term, is not supported when read in light of the written
 21 description. *See, e.g., Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1378
 22 (Fed. Cir. 2006) (reversing district court opinion that “place[d] too much emphasis on the ordinary
 23 meaning of [the claim term] without adequate grounding of that term within the context of the
 24 specification of the [asserted patent]”); *On Demand Machine Corp. v. Ingram Industries, Inc.*, 442
 25 F.3d 1331, 1348 (Fed. Cir. 2006) (reversing district court’s construction of claim term “customer”
 26 because it was of broader scope than the invention set forth in the specification, and noting that
 27 “the scope and outer boundary of claims is set by the patentee’s description of his invention”);
 28

1 *Nystrom v. Trex Co.*, 424 F.3d 1136, 1142-44 (Fed. Cir. 2005) (narrowly construing “board” to be
 2 made of wood, although the claims at issue did not “include any language describing the ‘board’
 3 as cut from a log or necessarily made of wood”).

4 **C. Claim Terms Can Be Limited by Their Usage in the Context of the Claim**
 5 **Itself and Other Claims.**

6 In addition to the specification and prosecution history, “the context in which a term is
 7 used in the asserted claim can be highly instructive” and “[o]ther claims of the patent in question,
 8 both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a
 9 claim term.” *Phillips*, 415 F.3d at 1314. “Because claim terms are normally used consistently
 10 throughout the patent, the usage of a term in one claim can often illuminate the meaning of the
 11 same term in other claims.” *Id.*

12 **D. Extrinsic Evidence The Does Not Conflict With The Intrinsic Evidence May**
 13 **Be Utilized in Claim Construction.**

14 Extrinsic evidence – “including expert and inventor testimony, dictionaries, and learned
 15 treatises” – may be utilized by the Court during claim construction, but such extrinsic evidence is
 16 “less significant than the intrinsic record determining the legally operative meaning of claim
 17 language.” *Phillips*, 415 F.3d at 1317 (citations omitted). General purpose dictionaries may be
 18 helpful for determining “the widely accepted meaning of commonly understood words.” *Id.* at
 19 1318; *Nystrom*, 424 F.3d at 1142. The Federal Circuit has approved of the use of expert testimony
 20 to confirm the meaning of disputed claim terms, particularly where the expert testimony was
 21 uncontradicted. *AstraZeneca LP v. Apotex, Inc.*, 633 F.3d 1042, 1053 (Fed. Cir. 2010)(citing
 22 *Netword, LLC v. Centraal Corp.*, 242 F.3d 1347, 1356 (Fed. Cir. 2001)). And expert evidence of
 23 accepted industry practice, when not at variance with intrinsic evidence, is relevant to the question
 24 of how a person of skill in the pertinent field would understand a term. *Callaway Golf Co. v.*
 25 *Acushnet Co.*, 576 F.3d 1331, 1338 (Fed. Cir. 2009)(citing *Phillips*, 415 F.3d 1303, 1318).

1 **II. U.S. PATENT NO. 8,007,550:**

2 • **“artificial firelog”**

3 This term is important in defining the universe of relevant prior art. In light of the intrinsic
4 evidence, this term means “an elongated, manufactured substitute for natural firewood suitable for
5 burning reasonably intact for approximately 2 to more than 4 hours.”³ This construction flows
6 directly out of the language of the term itself and tracks closely the description of artificial firelogs
7 in the Background of the Invention.

8 The claim language “artificial firelog” directly conveys two key aspects of Duraflame’s
9 proposed construction: that the claimed invention has a log-like, or “elongated” shape, and that is
10 an artificial, *i.e.*, manufactured, substitute for natural firewood. The elongated shape of an
11 artificial firelog is emphasized by the ‘550 patent specification’s discussion of a typical
12 manufacturing process as producing a “log-like” shape. ‘550 patent, 1:42-45. The specification
13 further notes that an artificial firelog is intended to provide a “desired ambiance” and burn for a
14 known duration, generally from 2 hours to more than 4 hours:

15 Fireplaces have been used in homes over the years for providing heat as
16 well as to provide a desired ambience. While wood and coal have been the
17 primary fuels for burning in fireplaces, there is an increasing demand for
18 manufactured or artificial fireplace logs. These logs are typically easier to
19 purchase and store, provide better heating values (BTU/lb) than wood or
20 coal, are easier to light, safer to use with virtually no maintenance during
21 burning, and can be used to build fires of a known duration, generally
22 from 2 hours to more than 4 hours.

23 ‘550 patent, 1:17-26. The patents incorporated by reference in the Background of the ‘550 patent
24 confirm the accuracy of Duraflame’s proposed construction. ‘550 patent, 1:46-50. Every one of
25 those patents is directed to artificial firelogs meeting Duraflame’s proposed construction. Griem
26 Decl., Exs. E-L.

27 ³ Duraflame has revised this construction slightly from the construction proposed in the
28 Rule 4.3 Joint Statement, to conform it more closely to the discussion of artificial firelogs in the
Background of the Invention of the ‘550 patent. In particular, “approximately 2-4 hours” in the
proposed construction has been revised to be “approximately 2 to more than 4 hours” to reflect
more closely the duration of expected firelog burn times stated in column 1, lines 28-29.

Hearthmark's proposed claim construction ignores these fundamental qualities of an "artificial firelog". An "artificial firelog" is not just a "substantially solid fuel product manufactured from more than one ingredient, that is intended to be burned in a home fireplace" as Hearthmark contends. It must also be "an elongated, manufactured substitute for natural firewood", and "suitable for burning reasonably intact for approximately 2 to more than 4 hours", if it is going to meet the intended purposes of an artificial firelog.

• **"combustible cellulosic material"**

This term, which refers to one of the two main constituents in the claimed artificial firelogs of the '550 patent, should be construed for the benefit of the factfinder as "combustible materials containing cellulose [$C_6H_{10}O_5$]_x as a structural component", in order to clarify what "cellulose" is and what role it plays in the claimed material. The dictionary definition of "cellulose" provides support for inclusion of the chemical formula " $[C_6H_{10}O_5]_x$ " and its role as a structural component of the claimed material. Griem Decl., Ex. M, Dictionary definition of "cellulose" from Random House Webster's Collegiate Dictionary (ed. 2005) ("an inert carbohydrate, $(C_6H_{10}O_5)_n$, the chief constituent of the cell walls of plants and of wood, cotton, hemp, paper, etc."). The patent's examples of combustible cellulosic or fiber materials demonstrate the range of potential cellulosic materials. '550 patent, 4:42-50. These examples all meet Duraflame's proposed construction.

• **"combustible non-petroleum wax"**

A "combustible non-petroleum wax" is the second of the two main constituents of the '550 patent's claimed artificial firelog. According to the intrinsic evidence, this term should be construed as a "combustible composition made up of one or more biologically based oily, fatty and waxy compounds derived from non-fossil sources." Both parties propose constructions of this term that confirm that a "non-petroleum" in this term refers to compounds that are not derived from fossil-based sources (like petroleum, coal or natural gas).

Duraflame's construction differs from Hearthmark's proposed construction ("flammable wax that does not contain any fossil-based materials") in one key regard – it confirms that the claimed wax can include one or more oily, fatty or waxy compounds, so long as they are

1 biologically based. These compounds do not all need to be physically characterized as a “wax”;
 2 the specification makes it clear that the “non-petroleum wax” can include some compounds that
 3 are oily or fatty compounds before they are blended into the non-petroleum wax constituent, so
 4 long as they are biologically based. ‘550 patent, 2:40-44 and 2:49-52. The patent’s examples of
 5 compounds that can be included in the combustible non-petroleum wax include a number that are
 6 not solid waxes. ‘550 patent, 4:65-5:8. Mr. Houck’s deposition testimony supports Duraflame’s
 7 claim construction. Griem Decl., Ex. N, Houck Depo. at 119:14-121:18 and 139:24-141:16.

8 • **“combustible binding agent”**

9 This term refers to an optional constituent of the claimed artificial firelog. It should be
 10 construed as “combustible additive that is not another constituent and that acts to bind together the
 11 artificial firelog” to clarify that this constituent of the claimed firelog is not the same as the
 12 combustible non-petroleum wax constituent. The combustible waxes in artificial firelogs are
 13 sometimes referred to as a “binder” in the prior art. *See, e.g.*, ‘550 patent, 2:60-67 (referring to the
 14 wax as a “binder material”). By contrast, the combustible “binding agent” of the ‘550 patent is an
 15 additive to the cellulosic material and combustible wax constituents that acts to bind together the
 16 artificial firelog and which can allow amounts of the more costly wax components to be reduced.
 17 ‘550 patent, 4:31-33. The specification gives a number of examples of this type of added agent
 18 which are not combustible waxes. ‘550 patent, 4:51-57. Mr. Houck’s deposition confirms this
 19 understanding of the difference between the claimed “combustible binding agent” and the waxes
 20 in the firelog. Griem Decl., Ex. N, Houck Depo. at 111:4-112:5.

21 • **“non-petroleum wax components”**

22 This term should be construed to clarify that the “non-petroleum wax **components**” of the
 23 non-petroleum wax constituent in the ‘550 patent claims are **not** the same as the various
 24 “**materials**” that in different amounts comprise the non-petroleum wax constituent. The “non-
 25 petroleum wax components” should be defined as “commercially available sources of vegetable
 26 oil or animal fats, and waxy, oily and fatty materials derived therefrom, blended to form the
 27 combustible non-petroleum wax constituent.” The ‘550 patent specification provides examples of
 28

these components, describing them as “common fats or oils that can be used to make a non-petroleum wax blend for artificial firelogs includ[ing] without limitation palm stearin, stearic acids, hydrogenated soy oil, hydrogenated tallow, distilled tall oil, and tall oil pitches.” ‘550 patent, 5:31-37. These components can include any “combustible vegetable oils or animal fats, and/or wax materials derived therefrom.” ‘550 patent, 4:65-5:8 (listing additional examples). The specification explains that these “raw wax materials” are obtained from “standard commercial sources.” ‘550 patent, 6:41-43.

By contrast, the claimed “materials” that are claimed in various ranges in claims 5, 7 and 9 (including, for example, the “saturated fatty acid material solid at room temperature,” and “pitch material” in claim 5) are defined chemically, as all compounds within the combustible non-petroleum wax constituent that are chemically characterized as a particular claimed material. The distinction between “non-petroleum wax components” and the various “materials” that are claimed in various ranges in claims 5, 7 and 9 is illustrated in the Tables in the specification, which show that particular raw material *components* (such as Stearic acid Pitch and Distilled Tall Oil) include different amounts of the claimed *materials*, according to standard chemical analysis techniques. ‘550 patent, 6:37-52 and Table 1 (showing percentages of saturated acid, unsaturated acid, rosin and pitch in these two particular components). This distinction is further explained below with respect to each of the claimed “materials.”

• **“saturated fatty acid material solid at room temperature”**

Duraflame’s proposed construction of this key term reflects the specification’s focus on determining the chemical profiles of the commercially available components that are blended to make the non-petroleum wax constituent. The inventors discovered that “the proper blend ratio of saturated fatty acids, resin acids, unsaturated fatty acids, and pitch can produce a non-petroleum wax mixture that is solid at room temperature with adequate consistency to be used as a firelog “wax.” ‘550 patent, 5:48-52. All of the asserted claims (6, 8, 9, 10 and 15) include the term “saturated fatty acid material solid at room temperature”, either directly or by reference to the unasserted claim from which they depend.

1 Based on the intrinsic evidence, this term should be defined as “all compounds within the
2 combustible non-petroleum wax constituent that are chemically characterized as a fatty acid
3 containing only single carbon-to-carbon bonds and that will not melt below 110 degrees
4 Fahrenheit.”

5 Support for this construction is found throughout the specification. Starting with column
6 5, line 9, the patent explains the chemical structure and synthesis of saturated fatty acids. ‘550
7 patent, 5:9-17. Saturated fatty acids have only single carbon-to-carbon bonds, a chemical
8 characterization found in the specification that Hearthmark does not dispute. *Id.* The specification
9 goes on to explain how the physical properties of certain materials in a fat or oil can affect the
10 resulting wax’s physical properties, by making it harder (i.e., solid at room temperature) or softer
11 (i.e., not solid at room temperature). ‘550 patent, 5:21-48.

12 In making their discovery, the inventors performed the experiments reported in the
13 specification in columns 6 through 8 and Tables 1-3, as well as Figures 1-4. They found that if the
14 fatty acid profile and resin content of a specific raw material (in the claims, a “non-petroleum wax
15 component”) was determined, and the types and relative amounts of the major chemical
16 components of the raw materials was known, then a consistent wax blend with a certain degree of
17 “hardness” could be designed. ‘550 patent, 6:1-20.

18 Tables 1 and 2 present data for the chemical composition and some physical properties of
19 the raw material components. Table 1 illustrates the fatty acid, rosin and pitch profiles of
20 commercially available raw materials Stearic Acid, Palm Stearin, Stearic acid Pitch, and Distilled
21 Tall Oil, showing that these raw materials have varying amounts of chemical components. ‘550
22 patent, 6:37-52. The specification further explains that profiles of the raw wax materials (the
23 “non-petroleum wax components” of the claims) can be obtain using standard chemical analysis
24 techniques such as the ones listed therein. *Id.* It is these chemical components (saturated acid,
25 unsaturated acid, rosin and pitch) that are each referred to as a “material” comprising the non-
26 petroleum wax constituent in the claims. *Compare, e.g.* ‘550 patent, Table 1 with claims 5, 7, and
27 9.

1 Duraflame's construction accords with the logical method of calculating the percent
 2 amount of "saturated fatty acid material solid at room temperature" in an artificial firelog. It
 3 makes clear that all of the compounds in the non-petroleum wax that meet the chemical definition
 4 of a saturated fatty acid should be considered a "saturated fatty acid material." This construction
 5 is directly supported by Table 1, in which the chemically determined amount of "Palmitic Acid"
 6 and "Stearic Acid" in "Stearic Acid Pitch" is listed, and the sum of these two types of saturated
 7 fatty acid is the calculated amount of "saturated acid." '550 patent, 6:37-52 and Table 1.
 8 Likewise, the "hardness" of the non-petroleum wax constituent in Table 3 was calculated by
 9 adding the amounts of the saturated fatty acid materials and rosin materials in the specific wax
 10 constituent used in each example. The "hardness" percent shown in Table 3 (and on the face of
 11 each of Figures 1-4) is the calculated sum of the saturated acids % and the rosin % shown in Table
 12 3. '550 patent, 7:7-21; 7:43-56 (explaining FIGS. 1-4) and Table 3 (listing the 4 blends A-D used
 13 in each of FIGS. 1-4, respectively). The patent focuses exclusively on chemical characterization
 14 in defining the "materials" in the non-petroleum wax constituent.

15 Duraflame's proposed claim construction includes the phrase "and that will not melt below
 16 110 degrees Fahrenheit" to provide more clarity regarding whether a particular saturated fatty acid
 17 material is "solid at room temperature." The specification states that "Hard waxes and materials
 18 are generally solid at ambient room temperature. Hard materials can also be classified as those
 19 materials that have a softening point of greater than 110° F." when using a certain method for
 20 determining the softening points of waxes. '550 patent, 7:9-14. Thus, the specification provides
 21 direct support for the use of 110° F. as the cutoff temperature for determining whether a material
 22 is solid or not solid at room temperature. The two specific examples of saturated fatty acid
 23 materials given in the specification, palmitic acid and stearic acid, are described as having melting
 24 points above 110° F, at 138° F and 143° F, respectively. '550 patent, 5:35-39.

25 Moreover, the specification suggests that room temperature, for purposes of the claimed
 26 invention, is the temperature in the manufacturing facility. '550 patent, 2:14-18 (distinguishing a
 27 prior art reference on the basis that it requires a different process to form the firelogs, which can
 28

1 significantly increase the cost and complexity of production); 7:64-67 (referring to formulations
2 that can be used to manufacture a firelog without requiring chemical hardening processes). Mr.
3 Houck's testimony supports Duraflame's construction from the perspective of an expert in this art.
4 Griem Decl., Ex. N at Houck Depo. at 123:18-127:8.

5 In light of the specification's explanation of the invention as focused on the properties of
6 particular chemical compounds in a non-petroleum wax blend, Hearthmark's proposed
7 construction of this term must be incorrect. Hearthmark's claim construction does not limit this
8 term to all compounds having the chemical structure of a saturated fatty acid. Instead, Hearthmark
9 proposes to define "saturated fatty acid material" as any "material comprising *a majority of*
10 carboxylic acid with an aliphatic carbon chain, wherein there are no double bonds between the
11 carbon atoms in the aliphatic carbon chain" (emphasis added). This construction is directly
12 contrary to the specification's instruction to determine the chemical profile of a raw material
13 component before blending it with other components to form a non-petroleum wax constituent
14 having the proper ranges of materials, explained above.

15 Similarly, Hearthmark's proposed construction of "solid at room temperature" as "not
16 readily flowable at 70°F" is contrary to the specification's teachings regarding the temperature
17 cutoff associated with proper hardness levels and the manufacturing-based context for "room
18 temperature" explained above. Hearthmark's construction should be rejected for the additional
19 reason that it uses an indefinite and scientifically vague term, "not readily flowable" to describe a
20 "solid" material.

21 • **"unsaturated fatty acid material not solid at room temperature"**

22 Duraflame's proposed construction for this term parallels that of "saturated fatty acid
23 material solid at room temperature". Because this term refers to "unsaturated" fatty acid material,
24 which include compounds having at least one carbon-to-carbon double bond, which do melt below
25 110°F, this term should be construed as "all compounds within the combustible non-petroleum
26 wax that are chemically characterized as a fatty acid containing at least one carbon-to-carbon
27 double bond and that will melt below 110 degrees Fahrenheit." The chemical definition of
28

1 unsaturated fatty acid, which Hearthmark does not dispute, is directly supported by the
2 specification. ‘550 patent, 5:17-18.

3 Similarly, “not solid at room temperature” should be defined as “will melt below 110
4 degrees Fahrenheit.” The specification describes oleic and linoleic acids as unsaturated fatty acids
5 of more industrial importance. ‘550 patent, 5:18-20. These acids are later described as
6 unsaturated chemical components found in the “soft” raw material components of a wax blend.
7 ‘550 patent, 5:41-48. After describing “hard” materials as those that have a softening point greater
8 than 110° F, the patent notes that “soft” materials like unsaturated fatty acids “are those materials
9 that are liquid, viscous and more pourable at room temperature.” ‘550 patent, 7:14-15.
10 Duraflame’s construction faithfully follows this intrinsic evidence.

11 Hearthmark’s proposed constructions regarding “unsaturated fatty acid material” and “not
12 solid at room temperature” should be rejected for the same reasons that its proposed constructions
13 of “saturated fatty acid material” and “solid at room temperature” are incorrect. Hearthmark’s
14 construction of “saturated fatty acid material” violates the intrinsic evidence by including any
15 material “comprising a majority of” unsaturated fatty acids, when the specification is clear that
16 unsaturated fatty acid material includes only compounds meeting the chemical definition of a
17 unsaturated fatty acid. Its construction of “not solid at room temperature” likewise violates the
18 intrinsic evidence by specifying “room temperature” is an arbitrary 70° F, when the patent refers
19 to 110° F as the upper cutoff for the relevant manufacturing room temperature.

20 • **“fatty alcohol or rosin solid at room temperature” / “fatty alcohol or rosin material solid at**
21 **room temperature”**

22 These claim terms appear in claims 7 and 9 and are used in parallel contexts. They should
23 therefore be given the same construction: “all compounds within the combustible non-petroleum
24 wax constituent that are chemically characterized as a fatty alcohol or a rosin and that will not
25 melt below 110 degrees Fahrenheit.”

26 This construction is directly supported by the intrinsic evidence for the same reasons as
27 discussed above in connection with two other materials comprising the non-petroleum wax
28

1 constituent: “saturated fatty acid material solid at room temperature” and “unsaturated fatty acid
 2 material not solid at room temperature”. The specification describes the claimed “materials”,
 3 including rosin, as one of the chemically characterized materials within the raw commercially
 4 available components. “Rosin,” which is identified in Table 1 as one of the chemically
 5 characterized compounds in various raw material components, is another name for the “resin
 6 acids” discussed in the specification as solid at room temperature. ‘550 patent, 5:39-41 and Table
 7 1. “[H]ard fatty alcohol” is paired with “rosin” in the specification’s listing of examples of
 8 preferred non-petroleum wax blends and the claims, making it clear that they should each have the
 9 same effect on the properties of the non-petroleum wax constituent. ‘550 patent, 8:37-39 and
 10 8:43-44 and claims 7 and 9. And logically, the phrase “solid at room temperature” in this term
 11 should be given the same construction as it is in “saturated fatty acid material solid at room
 12 temperature:” “will not melt below 110 degrees Fahrenheit.”

13 Hearthmark’s proposed construction should be rejected. For example, by relying on the
 14 physical appearance and properties of resin as “translucent amber-colored to almost black” and
 15 “brittle friable”, it will create ambiguity and unnecessary problems in application.

16 • **“pitch material”**

17 Like its constructions for the other materials in the non-petroleum wax constituent,
 18 Duraflame’s construction for “pitch material” is driven by the detailed description of the invention
 19 in the specification, discussed above. Based on that evidence, this term should be construed as
 20 “all material within the combustible non-petroleum wax constituent that is characterized as the
 21 low molecular weight reaction products found in the form of highly viscous liquids obtained from
 22 a distillation process.” This construction is drawn directly from the specification’s explanation of
 23 the content of the “soft” materials in the non-petroleum wax blend, which describes pitch as
 24 including the “highly viscous liquids made mostly of unsaturated fatty acids and uncharacterized
 25 low molecular weight reaction products from the distillation process.” ‘550 patent, 5:45-48.

26 Because the specification and patent claims set forth a separate ranges for “unsaturated
 27 fatty acid material” (one group of compounds found in raw pitch according to the specification’s
 28

definition quoted above) and “pitch material”, Duraflame’s construction of “pitch material” is limited to that material in raw pitch which can be chemically characterized as the low molecular weight reaction products found in the highly viscous liquids obtained from a distillation process that are not unsaturated fatty acids. In light of the intrinsic evidence, it is apparent that “pitch material” in claims 5, 7, and 9 is not the same as any commercially available raw material with “pitch” in its name. Table 1 shows that “Stearic acid Pitch” and “Tall Oil Pitch” have materials in them that are not chemically defined as “pitch material,” including unsaturated fatty acids. ‘550 patent, 6:37-52 and Table 1. Table 2 also shows that different batches of “Tall Oil Pitch” can have different amounts of “hard” and “soft” materials in them, according to chemical analysis. ‘550 patent, 6:37-7:2 and Table 2. “Soft” material includes both unsaturated fatty acid material and pitch material. *Id.*

The fact that different batches of the same commercially available wax component, even a component with “pitch” in its name, can have different chemical profiles demonstrates that Hearthmark’s construction of “pitch material” should be rejected. Hearthmark proposes a vague definition of “pitch material” that does not provide any analytical boundaries: “a black or dark viscous substance obtained as a residue from the distillation of organic materials.” This construction is directly contrary to the specification’s focus on determining the chemical profiles of various components using standard analytical techniques, discussed above. Moreover, Hearthmark’s proposed construction improperly defines this term based on the color of the “pitch materials” as “black or dark,” adding unnecessary complexity and complications to its application.

• “constituent that is liquid at room temperature”/ “at least one constituent that is liquid at room temperature”

Duraflame proposes to construe this term as “all compounds within the non-petroleum wax constituent that are liquid below 110 degrees Fahrenheit.” This construction is consistent with the intrinsic evidence and the other temperature-related constructions above.

As an initial matter, it is clear from the context of claim 1, the only place this term appears, that this term refers to a group of compounds within the non-petroleum wax constituent. The

specification describes unsaturated fatty acid material and pitch material as being compounds within the non-petroleum wax constituent that have the physical property of being “soft” or “liquid” at room temperature. ‘550 patent, 5:21-48. “Soft” materials are described as “those materials that are liquid, viscous and more pourable at room temperature.” ‘550 patent, 7:14-15.

Even though the this term includes the word “constituent”, it is clear from the context that this term does not refer to one of the three constituents in the other claims (combustible cellulosic material, combustible non-petroleum wax, and combustible binding agent). Instead, it refers to a group of compounds in the non-petroleum wax constituent that are defined by their physical property of melting below 110° F. For example, claim 1 also requires “from about 40% to about 70% of at least one saturated fatty acid material solid at room temperature” as an element of the “combustible non-petroleum wax constituent.” Similarly, claim 5 requires the same range of saturated fatty acid material solid at room temperature as well as “from about 30% to about 60% of at least one pitch material.” These chemically and physically-defined compounds are referred to as “materials” in the specification and elsewhere in the claims, and Duraflame’s proposed construction conforms to the other constructions of the different “material[s]” construed above.

Hearthmark’s proposed construction (“at least one constituent is readily flowable and is substantially incompressible at 70°F”) suffers from all of the same problems identified above in connection with Hearthmark’s proposed constructions of materials that are not solid at room temperature, and should be rejected for the same reasons.

• **“about” as used before percentages**

This term is used throughout the claims of the ‘550 patent in qualifying the endpoints of the ranges of various constituents and materials in the claimed invention. The Federal Circuit’s guidance on how to determine the scope of the word “about” focuses on the technological facts of a particular case, and confirms that this term does not have a universal meaning:

[t]he word “about” does not have a universal meaning in patent claims, . . . the meaning depends upon the technological facts of the particular case. * * * The use of the word “about,” [*sic*] avoids a strict numerical boundary to the specified parameter. Its range must be interpreted in its technological and stylistic context.

1 We thus consider how the term . . . was used in the patent specification, the
 2 prosecution history, and other claims. It is appropriate to consider the effects of
 3 varying that parameter, for the inventor's intended meaning is relevant. Extrinsic
 evidence of meaning and usage in the art may be helpful in determining the
 criticality of the parameter. . . ."

4 *Ortho-McNeil Pharmaceutical, Inc. v. Caraco Pharmaceutical Laboratories, Ltd.*, 476 F.3d 1321,
 5 1326 (Fed. Cir. 2007) (citing precedents); *see also Cohesive Technologies, Inc. v. Waters Corp.*,
 6 543 F.3d 1351 (Fed. Cir. 2008).

7 Duraflame's proposed construction is sensitive to the technological facts in this case, and
 8 is supported by extrinsic evidence. The term "about" when used before percentages ending in a
 9 multiple of 10 should be construed differently, depending on whether the term is used at the low
 10 end of a range or a high end. When "about" is used before percentages ending in a multiple of 10
 11 at the low end of a range, it should be construed to allow for a variation of "minus 5%" below the
 12 stated low end. When "about" is used before percentages ending in a multiple of 10 at the high
 13 end of a range, it should be construed to permit a variation of "plus 10%" above the stated high
 14 end of the range. For example, in claim 5, "from about 30% to about 60% of at least one pitch
 15 material" would include a range of pitch material concentrations of 25% to 70%, by weight, of the
 16 non-petroleum wax constituent.

17 In the claims of the '550 patent, almost all of the ranges are expressed in multiples of 10%.
 18 The specification also describes the ranges of ingredients of the invention generally using
 19 multiples of 10, and in one instance notes that the top end ranges of two major constituents can
 20 vary by 10% in typical firelogs. '550 patent, 1:56-58. This intrinsic evidence suggests that there
 21 is a degree of absolute imprecision in the claimed ranges of up to 10%, and directly supports
 22 Duraflame's proposed construction of "about" when used at the high end of a range. However, an
 23 absolute variation of up to 10% will have a higher relative effect at the low end of a range than it
 24 will at the high end of a range. For example, an absolute variation of 10% on a range with a low
 25 end of 20% (such as appears in claim 6) could result in a 50% relative variation in the content of
 26 the claimed material. The Summary of the Invention explains that certain amounts of the
 27 constituents and claimed materials is necessary to achieve the goals of the invention. '550 patent,
 28

2:45-3:47. Consequently, “about” should be construed at the low end of a range to permit only half the variation permitted at the high end, or “minus 5%”.

Mr. Houck’s testimony confirms that this construction is consistent with the understanding of a person of ordinary skill in the manufacture of firelogs, which is a necessarily imprecise large-scale process. Griem Decl., Ex. N, Houck Depo. at 89:17-97:10. The specification confirms that the benefits of the invention result from determining the optimal ratios between the chemical components of the composition, rather than depending on an absolute minimum or maximum amount of some particular ingredient. ‘550 patent, 4:26-33. 5:48-52 and 6:16-20. The specification also notes that the examples are illustrative, and that variations and other embodiments are within the scope of the claims. ‘550 patent, 9:10-15.

Some of the ranges in the claims begin with “about 2.5%”, a number that is not a multiple of 10. This use of “about” should be given a range of “minus 0.3%”, which allows a variation of approximately 10% below 2.5, and so reflects the general understanding of a person of ordinary skill reading the claims and specification that the claims should be given a scope of approximately 10% above and below the claimed ranges by virtue of the use of “about” before the numerical limits of the ranges.

Hearthmark’s proposed construction of “plus or minus 1%” therefore makes no sense, as it does not reflect the above technological considerations or the intrinsic evidence.

• “about” used before “100 parts”/ “a total of about 100 parts”

Duraflame proposes that “about” when used before “100 parts” be construed differently, to mean “such that the total of the percentage amounts of the constituents in the artificial firelog is, within measurement errors and rounding approximations, 100%.” This construction reflects the fact that measurements of the constituents will not be perfect, and that measurements may include rounding approximations.

The term “about 100 parts” is used in the ‘550 patent in qualifying the sum of the different amounts of the constituents. For example, in claim 1, which has two constituents, “about” is used at the end of the recitation of the relative amounts of the combustible cellulosic material

1 constituent (identified as constituent “(a)”) and the combustible non-petroleum wax constituent
 2 (identified as constituent “(b)”), in the phrase “for a total of about 100 parts of (a) and (b).”
 3 Logically, “about” in this context relates to the precision of the numbers that are being added to
 4 reach 100 parts: the weights of the constituents (a) and (b).

5 There are two self-evident reasons why constituent weights that are being added “for a
 6 total of about 100 parts” can be less than perfectly accurate: (1) because the measurements are
 7 made by plant workers who, like anyone, can make mistakes; and (2) because the numbers being
 8 added can be approximations because the actual measured amount is subject to rounding. Mr.
 9 Houck’s deposition testimony confirms that these self-evident reasons are recognized by those of
 10 skill in the art. Griem Decl., Ex. N, Houck Depo. at 131:23-133:4.

11 **III. U.S. PATENT NO. 8,123,824:**

12 **• “artificial firelog”**

13 Duraflame’s proposed construction for this term in the ‘824 patent is the same as its
 14 proposed construction for the same term in the ‘550 patent, because both are directed to artificial
 15 firelogs: “an elongated, manufactured substitute for natural firewood suitable for burning
 16 reasonably intact for approximately 2 to more than 4 hours.”⁴ Because the ‘824 patent contains
 17 the same Background discussion of the purpose and characteristics of an artificial firelog, it makes
 18 sense to apply the same construction of this term in both patents. *Compare* ‘550 patent, 1:17-26,
 19 1:42-45 and 1:46-50 (discussed above) with ‘824 patent, 1:20-29, 1:42-45, and 1:46-50.

20 **• “at least one combustible non-absorbent material selected from the group consisting of** 21 **ground oil-retaining and fat-retaining material, said group not including coffee grounds” /** 22 **“combustible, nonabsorbent oil or fat retaining material”**

23 This complex term is one specially defined by the inventors of the ‘824 patent to identify
 24 one of the constituents of the claimed artificial firelog. Duraflame’s proposed construction

25 ⁴ This construction is revised slightly from the construction proposed by Duraflame in
 26 the Rule 4.3 Joint Statement, to conform it more closely to the discussion of artificial firelogs in
 27 the Background of the Invention of the ‘824 patent. In particular, “approximately 2-4 hours” has
 28 been revised to be “approximately 2 to more than 4 hours” to reflect more closely the duration of
 expected firelog burn times stated in column 1, lines 28-29.

1 elucidates the essential characteristics of this constituent: “combustible oil and fat retaining
2 material ground to a suitable particle size that does not contain coffee grounds and which does not
3 absorb as much oil as softwood sawdust.” Duraflame’s proposed construction also clarifies that
4 this constituent of the claimed invention is distinct from the “combustible cellulosic material”
5 constituent of the claimed invention, an example of which is sawdust, as discussed in more detail
6 below.

7 Crucially, this constituent must be both “non-absorbent” and “oil-retaining and fat-
8 retaining”. These characteristics are a result of the structure of the material, which contains
9 residual fats and oils, which means that it cannot absorb significant amounts of additional fats and
10 oils. The inventors discovered that certain fibers occurring naturally in agricultural by-products,
11 such as non-wood seeds and fibers as well as synthetic filter materials, contain oils and fats that
12 can provide increased BTU value (a measure of energy potential) beyond the cellulosic or mineral
13 components of the material, thereby providing a means to decrease the amount of costly petroleum
14 and/or non-petroleum wax used in a firelog. ‘824 patent, 2:60-3:22 and 9:5-11. Because of their
15 residual oil and/or fat content, such materials also absorb less wax material than wood fibers,
16 allowing for an even further reduction in combustible wax in a firelog mixture. *Id.*

17 By using these materials in appropriate proportions, the amount of more costly petroleum
18 wax can be reduced. ‘824 patent, 4:66-5:12. Specific examples of the claimed “non-absorbent
19 material” include various agricultural by-product materials, distillers grains, and filter cake
20 materials. ‘824 patent, 6:24-42. These specific examples of “non-absorbent material” are
21 identified in the claims and further defined below.

22 The ‘824 patent specification provides the results of several experiments to illustrate how
23 non-absorbent the “oil or fat retaining material” must be to be considered the claimed “non-
24 absorbent material.” These experiments support the inclusion in Duraflame’s construction of the
25 phrase, “and which does not absorb as much oil as softwood sawdust.” The inventors performed
26 the experiments reported in Table 1 to demonstrate that certain oil-retaining agricultural materials
27 used in the invention were five to nine times less oil absorbing than softwood fiber (i.e., softwood
28

1 sawdust) and had a higher oil content (and therefore a higher BTU energy value) than softwood
 2 sawdust. ‘824 patent, 5:13-32 and Table 1. The inventors also invented a test to confirm that
 3 these same materials were much less oil-absorbent, as reported in Table 1. ‘824 patent, 5:33-49
 4 and Table 1.

5 To illustrate the superior burn performance of the claimed inventive firelogs, the inventors
 6 performed an experiment comparing the performance of a firelog containing only highly adsorbent
 7 wood fiber with firelogs containing three different blends of non-absorbent, oil-retaining
 8 materials. ‘824 patent, 4:45-62 (describing FIGS. 1-4); 6:65-67 and 7:32-8:35 and Table 2
 9 (discussing FIGS. 1-4). Not only does the use of non-absorbent material reduce the amount of
 10 more costly wax constituent, it also reduces the overly aggressive initial burn off rate of wax and
 11 provides additional fuel for consumption throughout the burning process. *Id.*; *see also* ‘824
 12 patent, 7:9-13; 7:16-31.

13 The claimed “non-absorbent material” must also be “ground” to a suitable particle size, so
 14 that it can be effectively mixed with the other constituents before the mixed constituents are
 15 formed into a firelog shape. ‘824 patent, 8:55-61. The “ground” aspect of the claimed material
 16 was explained in prosecution, in the course of distinguishing a prior art patent to Williams that
 17 included small amounts of unground oil-retaining seeds in the firelog for purposes of creating
 18 crackling noises. Griem Decl., Ex. P, ‘824 patent file wrapper, Office Action Response dated
 19 Nov. 15, 2011 (discussion on pages 7-8 distinguishing Williams U.S. Patent 5,868,804 (Griem
 20 Decl. Ex. H) by explaining that the non-absorbent, oil-retaining material was ground and
 21 distributed substantially uniformly throughout the log during manufacture). To clarify the
 22 meaning of “ground” in this term, Duraflame’s construction includes the phrase “ground to a
 23 suitable particle size.”

24 Finally, Duraflame’s claim construction confirms that the claimed non-absorbent material
 25 constituent “does not contain coffee grounds.” Hearthmark proposes a functionally identical
 26 construction for the phrase “said group not including coffee grounds”: “said group contains no
 27
 28

1 coffee grounds.” Duraflame’s construction effectively includes Hearthmark’s proposed
2 construction, so there is no dispute between the parties on this point.

3 The shorter claim term “combustible, nonabsorbent oil or fat retaining material” that
4 appears in claim 12 should be construed the same way as the longer term “at least one combustible
5 non-absorbent material selected from the group consisting of ground oil-retaining and fat-retaining
6 material, said group not including coffee grounds,” discussed above. It is clear from the context
7 that the shorter term in dependent claim 12 is a shorthand reference to the longer term discussed
8 above, which appears in independent claim 1, because both are identified by the same constituent
9 identifier, “(b)”. They should therefore logically be given the same construction.

10 • **“combustible cellulosic material”**

11 Unlike “artificial firelog”, the ‘824 patent’s intrinsic evidence compels the conclusion that
12 the term “combustible cellulosic material” should be given a *different* meaning in the ‘824 patent
13 than in the ‘550 patent. In the ‘824 patent, “combustible cellulosic material,” the first constituent
14 of the claimed artificial firelog, is differentiated from another constituent that can contain some
15 cellulose, the “combustible non-absorbent material.”

16 Consequently, Duraflame proposes that this term be construed in the ‘824 patent as:
17 “combustible material containing cellulose [C₆H₁₀O₅]_x] as a structural component *and which is not*
18 *included within the combustible non-absorbent material constituent.”* This construction clarifies
19 that, for purposes of determining the amounts of each of the constituents of the firelogs claimed in
20 the ‘824 patent, any material that qualifies as constituent “(b)” of claims 1, 7 or 8 (either a
21 “combustible non-absorbent material” or one of the constituents listed after “(b)” in claim 7, such
22 as an “agricultural by-product material”) should *not* be considered a “combustible cellulosic
23 material,” even though it may contain some cellulose.

24 Each of the independent claims identify “combustible cellulosic material” (a) as a separate
25 constituent from the “non-absorbent material” constituent (b). And the specification explains that
26 non-woody cellulosic material, a kind of “non-absorbent material”, is intended to replace the
27 sawdust usually used as “combustible cellulosic material”. ‘824 patent, 5:13-32 and Table 1. The
28

1 specification structurally distinguishes “non-absorbent material” from “cellulosic material” on the
 2 basis that “non-absorbent” material has a substantial amount of residual oil content and does not
 3 absorb as much oil as conventional “cellulosic” material like sawdust. *Id.*

4 The patent’s list of examples for “non-absorbent” material, including agricultural by-
 5 product materials, confirms that these materials have an essential property not found in all
 6 cellulosic materials, i.e., that non-absorbent material naturally contains or synthetically retains
 7 combustible fats, oils and/or waxes. ‘824 patent, 6:24-42. The ‘824 patent does include some
 8 non-absorbent material, like peanut or other nut shells, in its laundry list of potential that
 9 combustible cellulosic or fiber materials. ‘824 patent, 5:63-6:3. But it goes on to unequivocally
 10 confirm that that non-absorbent material should be counted separately from oil-absorbing
 11 cellulosic materials like wood fiber when preparing artificial firelogs of the invention. ‘824
 12 patent, 7:16-22. The “non-absorbent material” constituent can even completely replace the
 13 cellulosic wood fiber constituent. ‘824 patent, 7:23-31 and claims 1, 7, and 8 (claiming a
 14 proportion of “combustible cellulosic material” of “from about 0% to about 40%”).

15 • **“combustible binding agent”**

16 This constituent should be given the same construction in the ‘824 patent as the constituent
 17 of the same name found in the ‘550 patent: “combustible additive that is not another constituent
 18 and that acts to bind together the artificial firelog.” This constituent has the same role and
 19 properties in both patents, and likewise should be defined as separate and different from the
 20 combustible wax constituent used in both patents. While the ‘550 patent has more specific
 21 examples of possible binding agents, both patents provide the same three chemically-defined
 22 materials as examples: a polysaccharide, a polyol, and glycerol. *Compare* ‘550 patent, 4:51-57
 23 with ‘824 patent, 6:62-64. As in the ‘550 patent, the combustible “binding agent” is an additive to
 24 the other constituents that acts to bind together the artificial firelog and which can allow amounts
 25 of the more costly wax components to be reduced. ‘824 patent, 5:50-62 and 7:7-9.

1 • **“combustible wax material”**

2 The term “combustible wax material” is used to define constituent “(c)” in independent
3 claims 1, 7 and 8 and in dependent claim 12. Duraflame’s proposed construction is “combustible
4 wax composition made up of one or more waxes, oils and fats.” This construction clarifies that
5 this constituent can include compounds that are not waxes before they are blended to form the
6 “combustible wax material,” as explained in the specification. ‘824 patent, 1:34-36; 6:43-61.

7 • **“combustible petroleum or non-petroleum wax material”**

8 This term is used in dependent claims 6 and 11 to refer to constituent “(c)”, the
9 “combustible wax material” of claims 1 and 7. Duraflame’s proposed construction of this term is
10 directly supported by the specification and confirms that this constituent can include compounds
11 that are derived from either petroleum or non-petroleum sources: “combustible composition of one
12 or more oily, fatty and waxy compounds derived from fossil or non-fossil sources.” ‘824 patent,
13 4:20-30; 6:43-61.

14 • **“combustible petroleum wax material” / “combustible petroleum material”**

15 Duraflame’s construction of these terms as “combustible composition of one or more fossil
16 fuel-derived waxes and oils,” follows its constructions of the other “wax material” terms defined
17 above, and for the same reasons. These terms can be found in dependent claims 4 and 10, and
18 further limit constituent “(c)”, the “combustible wax material.”

19 • **“non-petroleum wax material”**

20 Duraflame’s construction of this term as “combustible composition of one or more
21 biologically based oily, fatty and waxy compounds derived from non-fossil sources” follows its
22 construction of the other “wax material” terms, above. It emphasizes that “non-petroleum wax
23 material” is derived from biologically based sources. ‘824 patent, 6:49-59. This term is used in
24 dependent claims 10, 14, 16, and 17 to further limit constituent “(c)”, “combustible wax material.”

25 • **“combustible nonabsorbent oil-retaining agricultural residues” / “agricultural by-product”**
26 **/ “agricultural by-product material”**

These three terms in dependent claims 2-6 further limit the term “at least one combustible non-absorbent material selected from the group consisting of ground oil-retaining and fat-retaining material, said group not including coffee grounds” used in claim 1 to define constituent “(c).” Duraflame’s proposed construction of them therefore includes all the limitations of the “non-absorbent material” of claim 1, as well as further limiting this term to biologically based material derived from processing agricultural products: “biologically based combustible oil- and fat-retaining material derived from processing agricultural products and ground to a suitable particle size that does not contain coffee grounds and which does not absorb as much oil as softwood sawdust.” The claim term’s language “agricultural by-product” and “agricultural residues” provides express support for the limitations “biologically based” and “derived from processing agricultural products”. And the examples of agricultural by-products and residues are all materials derived from processing agricultural products. ‘824 patent, 5:17-32 and Table 1 and 6:29-34.

The terms “agricultural by-product” and “agricultural by-product material” are also used in independent claims 7 and 8. For the sake of consistency, they should be given the same meaning in those claims as they are in dependent claims 2-6.

• **“vegetable pumice” / “fruit pumice”**

These terms appearing in dependent claim 3 should be construed as “skins, seeds, and other natural residues left over after pressing liquids out of vegetables” to clarify their meaning for the finder of fact. Similarly, “fruit pumice” should be construed to reflect the meaning a person of ordinary skill would understand in the context of the invention: “skins, seeds, and other natural residues left over after pressing liquids out of fruits.” These constructions reflect the meaning of “pomace”, an agricultural by-product of the type used in the ‘824 patent (‘824 patent, 4:36-40) rather than “pumice,” a form of volcanic glass which has no meaning in the context of artificial firelogs. Duraflame’s claim construction is supported by the dictionary definitions of “pumice” and “pomace” in Random House Webster’s Collegiate Dictionary (ed. 2005). Griem Decl., Ex. O.

• **“distiller’s grain” / “a distillers grain” / “combustible non-absorbent, oil-retaining distillers grain”**

These three terms are used in claims 2, 8, 9, and 10 to refer to a type of “non-absorbent material” that includes combustible oil: “grain leftover from distillation processes containing combustible oil and unfermented grain residues.” All “non-absorbent” materials contain oils and fats that can provide increased BTU value beyond the cellulosic or mineral components of the material. ‘824 patent, 2:61-3:6. Distiller’s grain is expressly described as containing combustible oil and as being the cereal by-product of brewers or ethanol distillation processes. ‘824 patent, 3:63-4:3 and 6:34-36.

• **“a filter cake material” / “combustible, non-absorbent oil-retaining filter cake”**

Duraflame’s proposed construction of these terms, like its construction of “distiller’s grain”, clarifies that this combustible, non-absorbent oil-retaining material includes the residual fuel materials trapped in the filter cake: “a filter media containing residual fuel materials.” The specification expressly describes “filter cake material” as containing one or more residual fuel materials.” ‘824 patent, 3:42-45, 4:40-43 and 6:36-43.

• **“about” as used before percentages**

Duraflame’s proposed construction of “about” when used before percentages in the ‘824 patent relies on the same reasoning explained above used in construing the term “about” as used before percentages in the ‘550 patent. Both patents are directed to the same subject matter, artificial firelogs, and both would be understood by a person of ordinary skill to permit some variation around the claimed ranges of firelog ingredients. ‘824 patent, 1:51-54, 5:6-12. The ‘824 patent likewise explains that the amount of the various constituents can be varied and still achieve the benefits of the claimed invention. ‘824 patent, 7:9-31; 7:32-8:16; 9:5-11; 9:12-17.

Therefore, when “about” is used before percentages at the low end of a range ending in multiples of 5 and 10, it should mean “minus 5%.” When “about” is used before percentages at the high end of a range ending in multiples of 5 or 10, it should mean “plus 10%.” When the ‘824 patent uses “about” before “0%”, the parties agree that it should mean “nothing”.

• **“about” used before “100 parts”**

1 Duraflame's proposed construction of "about" used before "100 parts" is the same in the
 2 '824 patent as it is in the '550 patent: "such that the total of the percentage amounts of the
 3 constituents in the artificial firelog is, within measurement errors and rounding approximations,
 4 100%." The '824 patent's claims, like the '550 patent's claims, use "about" as a qualifier when
 5 limiting the claimed inventions to having "about" 100 parts of the sum of the claimed constituents.
 6 The specification confirms that "about" is used before 100 parts with reference to the sum of the
 7 constituents. '824 patent, 3:23-31, 3:56-4:19 and 5:50-62. The '824 patent specification, like the
 8 '550 specification, makes it clear that the claims should be understood in the context of
 9 conventional firelog manufacturing practices. '824 patent, 8:55-57.

10 Dated: January 4, 2013

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11 By: /s/ John M. Griem, Jr.

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 14 DURAFLAME, INC.
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PROOF OF SERVICE

I, John M. Griem, Jr., the undersigned, declare that:

I am employed in the County of New York, State of New York, over the age of 18, and not a party to this cause. My business address is 345 Park Avenue, New York, New York 10154.

On January 4, 2013, I served a true copy of **DURAFLAME'S OPENING CLAIM CONSTRUCTION BRIEF** on the parties in this cause as follows:

[X] (ELECTRONIC MAIL OR ELECTRONIC TRANSMISSION), I caused the documents to be sent to the respective e-mail address of the party as stated below. I did not receive, within a reasonable time after the transmission, any electronic message or other indication that the transmission was unsuccessful.

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I declare under penalty of perjury under the laws of the State of New York that the foregoing is true and correct.

Executed on January 4, 2013 at New York, New York.

/s/ John M. Griem, Jr.
John M. Griem, Jr.